

The RAM R-200 Meter Ruggedized Multipurpose Survey Meter

Radiation Detection Division

Health Physics



The **RAM-R-200** is a portable multifunctional, rugged survey meter designed for measuring wide range gamma radiation fields and contamination. The sturdy casing and internal electronics are designed to withstand shocks and vibrations and perform reliably in extreme environments. The detector response complies with ambient dose equivalent $H^*(10)$.

The internal energy compensated GM tube together with optional external probes will detect, measure, and digitally display both dose and dose rate levels of gamma radiation from 0.1 $\mu\text{Sv/h}$ to 100 Sv/h (10 uR/h – 10,000 R/h), and alpha/beta contamination from 0 to 1 Mcpm. An audible indication is activated either by frequency fluctuations in accordance with the field strength or chirp for each measured pulse.

The **RAM R-200's** auto-ranging meter utilizes a combination display consisting of a smoothed digital display for minimum fluctuations, and a two-decade logarithmic analog bar graph for fast response.

Applications

- Ruggedized, portable, compact, lightweight instrument.
- Simple operation: only four push buttons.
- Built-in RS-232 communication - three channels.
- Special setup modes accessed via our configuration software.
- Large, easy to read, digital and analog customized LCD.
- Display backlight offers bright illumination for use in dark areas.
- Easy connection of optional external probes.
- Reliable telescopic rod (optional) containing a quick connection housing for meter and external gamma probes.
- Audible alarm.
- Automatic self-test of meter and external probes.
- Automatic detector identification with each change of detector.
- Automatic recording of dose accumulation by the internal detector also when the meter measurement is done by an external probe.
- Low current consumption, more than 100 hours of continuous operation with a single 9V battery.
- Passed sub-pressures, dust, shock, vibration, drop and immersion tests.
- Meets MIL-STD 810, MIL-STD 461, ICRP60, ICRU39 and CEI 846 standards.
- The instrument is designed to be easily decontaminated.
- CE marked.

Internal Detector

Counting Tubes	ZP-1202 or equivalent ZP1314 or equivalent
Measuring Range	0.1 μ Sv/h to 1 Sv/h (10 μ R/h to 100R/h)
Energy Response	\pm 35% from 60 to 2000 keV
Sensitivity	17 cps/mR/h(ZP1201) 1.4 cps/mR/h(ZP1313)
Accuracy	\pm 10 % of reading, within the measuring range
Data logging	1000 data records
Display	DigiLog (3 digits and 2 decades of analog bar graph)
Four push-buttons	On/off, Light, Speaker, Mode
Measuring units Radiation	Sv/h, Sv or R/h, R (e.g. μ R/h, mR/h, R/h)
Contamination	cpm or counts (e.g. cpm, Kcpm, Mcpm)
Power source	One 9-Volt alkaline battery 100 hours of continuous operation
Temperature range Operation	Operation: -30°C to +60°C (-22°F to 140°F)
Storage	Storage -30°C to +70°C (-22°F to 158°F)
Humidity range	10% to 95% RH (non condensing)
Casing	Seawater resistant aluminum alloy, shock resistant
Meter dimensions	Length 134 mm (5.3") Breadth 80 mm (3.15") Width 35 mm (1.4")
Weight	460 gr (1 lb) (incl. cell)
Meter part no	BAK-2070
Accessories	
Leather carrying bag	BAK-1590
Telescopic rod	
50 cm to 150 cm (0.5 yard - 1.6 yards)	BAK-2060
95cm to 330 cm (1 yard to 3.6 yards)	BAK-1790
Cables	
Meter to Detector	BAK-0400
Meter to P.C.	BAK-2050
Detector to P.C. adapter	BAK-0010
TeleRod to PA-100 detector	BAK-2370

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External Detectors

Detector RG-10
α,β,γ contamination



Range	0 - 1.00 Mcpm
Window	1.5 - 2.0 mg/cm ²
Effective area	15.5 cm ²
Sensitivity	3500 cpm/mR/h (¹³⁷ Cs), 500 cpm/Bq/cm ² (⁹⁰ Sr ⁹⁰ Y), 175 cpm/Bq/cm ² (²³⁹ Pu)
Geiger	NRC 2006
Accuracy	± 10% of reading
Temperature Range	-30°C to +60°C (-22°F to 140°F)
Weight	310 gr (0.7lb)
Dimensions	181 mm (7.1") x 62 mm (2.4") Diam.
Casing	Aluminum, splash proof, IP-64

Detector RG-12
α,β,γ contamination



Range	0 - 1.00 Mcpm
Window	1.5 - 2.0 mg/cm ²
Effective area	6.4 cm ²
Sensitivity	1500cpm/mR/h (⁶⁰ CO), 120 cpm/Bq/cm ² (⁹⁰ Sr ⁹⁰ Y), 51 cpm/Bq/cm ² (²³⁹ Pu)
Geiger	LND 7231
Accuracy	± 10% of reading
Temperature Range	-30°C to +60°C (-22°F to 140°F)
Dimensions	155 mm (6.1") x 40 mm (1.6") Diam.
Weight	280 gr (0.6 lb)
Casing	Aluminum, splash proof, IP-64

Detector RG-40
High range γ radiation



Range	1mSv/h - 100 Sv/h (0.1 R/h - 10,000 R/h)
Energy response	± 35% from 60 KeV to 2.0 MeV
Sensitivity	77 cps/R/h
Geiger	4G60M
Accuracy	± 10% of reading
Temperature Range	-30°C to +60°C (-22°F to 140°F)
Dimensions	145 mm (5.7") x 30 mm (1.2") Diam.
Weight	130 gr (0.3 lb)
Casing	Aluminum, splash proof, IP-67

Detector PA-100M
α contamination



Range	0 to 1.0 Mcpm
Type	Air proportional
Window Thickness	0.85mg/cm ² aluminized window
Effective area	100 cm ² (15.5 in ²)
Probe Efficiency 2π	*18%
Surface Sensitivity	*530cpm/Bq/cm ² compensated in the meter to 100% to be 3000 cpm/Bq/cm ²
Accuracy	*15% of reading
Temperature Range	-10°C to +50°C (14°F to 122°F)
Width	75mm (3")
Height	55mm (2.2")
Length	240mm (9.5")
Weight	1Kg (2.2 lbs)
Casing	Aluminum, splash proof, IP-64 (*related to ²⁴¹ Am)

Detector RP-11
Highly sensitive γ contamination



Range	0 to 50,000cps
Radiation Detected	Gamma above 50 keV
Scintillator	Nal(Tl) 2" diameter, 2" thick. Window of 1 mm. (0.04") Al.
Sensitivity	20,000 cps/mR/h (¹³⁷ Cs)
Energy Calibration	Software calibrated single channel analyzer (SCA).
Temperature Range	-30°C to +60°C (-22°F to +140°F)
Humidity Range	10% to 95% RH (non condensing)
Dimensions	340mm (13.4") x 70mm (2.75") Diam.
Weight	1.75kg (3.9lbs)
Casing	Aluminum, splash proof, IP-65

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Emergency Response Kits

Emergency Response Kit #1



Includes:

Pelican case 1400

RAM R-200 Survey Meter

RG-12 detector (α, β, γ contamination detector)

Dimensions: 13" x 12" x 6"

Optional: RG-10 detector (α, β, γ contamination detector)

Emergency Response Kit #2



Includes:

Pelican case 1500

RAM R-200 Survey Meter

RG-12 detector (α, β, γ contamination detector)

PA-100 detector (α contamination detector)

Dimensions: 18" x 15" x 7"

Optional: RG-10 detector (α, β, γ contamination detector)

Emergency Response Kit #3



Includes:

Pelican case 1520

RAM R-200 Survey Meter

RG-12 detector (α, β, γ contamination detector)

RG-40 detector (γ high range radiation detector)

PA-100 detector (α contamination detector)

TeleRod 50 to 150 cm

Dimensions: 19" x 15" x 7"

Optional: RG-10 detector (α, β, γ contamination detector)

Environmental Rad. Meter



Includes:

Pelican Suitcase

RAM R-200 Survey meter

RP-11 detector (γ contamination detector)

Dimensions: 5.3" x 3.2" x 1.4"

The RP-11 detector will measure radiation until 27 uSv/h. Above this level the RAM R-200 will take over the measurement.

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